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Constructivist Theory and Virtual Worlds:

Intrinsic Learning Strategies

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Constructivist Theory and Virtual Worlds:

Learning Strategies Intrinsic to Games

1.1 Introduction

In an era of increasing technological advances and dependence, new innovations and tools may prove to be effective in the field of education. One new technology is that of three-dimensional virtual worlds. Three-dimensional world environments are a space for users to interact with one another and objects in a shared space. Dickey (2003) defines three-dimensional virtual worlds “as networked, desktop virtual reality.” Most of the environments are web based; therefore allow for users in any location to access the space and interact with others. Three-dimensional virtual worlds differ from virtual reality in that the user of a three-dimensional virtual world utilizes the computer as a means to enter the virtual space. The user also has an avatar in the virtual space to manipulate in the various places. There is a degree of separation between the user and three-dimensional virtual worlds. Virtual reality immerses the user in a three-dimensional space through goggles or lenses. There is no avatar to serrate the user from the environment.

Three-dimensional virtual worlds show positive possibilities in the field of education. The shared space allows for a collaborative and cooperative environment. The environments allow users from any location with an Internet connection to access the space in real-time. This creates a possibility for a variety of users in various locations to meet together during a common time and connect with one another. Three-dimensional virtual worlds are immersive and engaging for students. They allow students to interact in a world that may not be physically possible in the real world. Virtual worlds also allow the user to test boundaries. While having an avatar can be both positive and negative, depending on one’s goal in the virtual environment, the avatar itself acts as a barrier to the real user and may give students a sense of empowerment and identity self-reflection.

2.1 Review of Literature

*2.2 Teaching in 3D: Pedagogical Affordances and Constraints of 3D Virtual Worlds for Synchronous Distance Learning*

*Related theories*

“Three-dimensional (3D) virtual worlds are a new technology that holds some promise as constructivist learning environments for distance education” (Dickey 2003).

*Research questions*

“The purpose of this study is to examine how one 3D virtual world application, Active Worlds, supports a constructivist learning environment…by examining the pedagogical affordances and constraints of (a) the discourse tools; (b) the experiential tools; and (c) the resource tools. This first goal of this study is to illustrate the potential medium

*Research methods*

“The investigation presents an evaluative case study of the pedagogical implications of using one 3D virtual world, Active Worlds, for synchronous distance education. The research design for this qualitative study focuses on the pedagogical affordances and constraints. Methods employed in the data collection include participatory observations, class logs, and formal and informal interviews with the instructor of a synchronous distance learning course offered through Active Worlds University” (Dickey 2003).

*Participants*

The participants were students in a “3D object-modeling course offered by AW University during the fall and winter of 1998-1999 taught by AW user Magine” (Dickey 2003). “The instructor had building rights and eminent domain rights that allowed her to alter the setting to suit her needs…The class instructor, Magine, was the creator of Intro to RWX Modeling. Although she is an experienced programmer, she has no formal training in 3D modeling, nor has she any training as a teacher” (Dickey 2003).

*Instruments*

*Procedure*

*Measurement*

*Findings*

“Findings reveal that although Active Worlds provides tools that support constructivist learning environments, the affordances and constraints of the tools (discourse, experiential, and resource) may, to varying degrees, impact the pragmatic use of this medium. While this initial investigation reveals that this technology supports constructivist learning environments, more research needs to be conducted to fully explore the potential of 3D virtual worlds as both distance and traditional classroom learning environments” (Dickey 2003).

*2.33-D Virtual Worlds in Education: Applications, Benefits, Issues, and Opportunities*

*Related theories*

“Three-dimensional virtual world environments are providing new opportunities to develop engaging, interactive experiences in education. These virtual worlds are unique in that they allow individuals to interact with others through their avatars and with objects in the environment, and can create experiences that are not necessarily possible in the real world” (\_\_\_\_\_ 2008).

*Research questions*

“To assess the impact that these virtual worlds are currently having on education, a literature review is conducted to identify current applications, benefits beign realized, as well as issues faced. Based on on this review, virtual wold capabilities, experiences, and factors associated with educational opportunities are presented as well as gaps in meeting pedagogical objectives” (\_\_\_\_\_ 2008).

*Research methods*

*Participants*

*Instruments*

*Procedure*

*Measurement*

*Findings*

*2.4 Exploring the educational potential of virtual worlds- Some reflections form the SPP*

*Related theories*

“This [study] provides an overview of the first three phases of the SPP and briefly outlines the research methodoligies used within it” (Twining 2009). The Schome Park Programme (SPP) “aims af extending our thinking about schome, which aims to be the optimal educationa system for the 21st century. Open virtualworlds like Second Life virtual world offer opportunities for people to have radically different ‘lived experiences’ of educational ststems and thus seemed to be the ideal vehicle for exploring alternative models of education” (Twining 2009).

*Research questions*

“To explore the educational potential of virtual worlds (with a particular focus on developing Secod Life skills and ‘Knowledge Age Skills’, To build a community of learners, To enhance ‘knowledge Age Skills’, to increase student control and responsibility for the environment, the curriculum, the curriculum and support, to widen the community, to enchance ‘Knowledge Age Skils’, to balance control and responsibility for the environment, the curriculum and support, to widen the community and increase its size, to explore the co-existence of the schome ethos with school culture” (Twining 2009).

*Research methods*

Island is divided into six areas: physics, ethics and philosophy, archaelogy, Scho-op (generic suppot), hared meetings areas, sandbox. The island, wiki and forum was made available 24/7/365. Island as naturalistic and attractive environment with some core generic areas- student control of planning/building, Immersive game theme for new island.

*Participants*

250 students aged 13 to 17 from the National Association of Gifted and Talented Youth. Staff from four universities, Staff from the National Physical Laboratory, PhD students, consultants, teachers, and parents.

*Instrumentsß*

*Procedure*

*Measurement*

*Findings*

3.1 Analysis

References